

The block diagram illustrates the architecture of a laser disc player system 70. At the top, a **HOST COMPUTER** (80) is connected via a bidirectional interface (I/F) (13) to a **SYSTEM CONTROLLER** (10). The system controller (10) manages the overall operation and is connected to a **SERVO PROCESSOR** (14) and a **GROUP DECODE** (25) block. A **BUCKET MEMORY** (20) is connected to an **ENCODE/DECODE** (12) block, which in turn interfaces with the system controller (10) and the I/F (13). The **ENCODE/DECODE** (12) block outputs **EFM** data to a **BINARIZATION** (11) block and **PLCK** data to a **PLL** (24) block. The **PLL** (24) provides a **WOB** (25) signal to the **GROUP DECODE** (25) block. The **GROUP DECODE** (25) block outputs **SPE** (Speech) signals to the **SERVO PROCESSOR** (14). The **SERVO PROCESSOR** (14) also receives **FE** (Focus Error) and **TE** (Tracking Error) signals from the **RF** (9) block and outputs **FD** (Focus Drive) and **TD** (Tracking Drive) signals to the **SPM DRIVER** (17) and **LASER DRIVER** (18) respectively. The **RF** (9) block receives **FE** and **TE** signals from the **SERVO PROCESSOR** (14) and outputs **WOB** (25) to the **GROUP DECODE** (25) block. The **RF** (9) block also outputs **WDATA** (22) to the **SLED DRIVER** (15) and **LASER DRIVER** (18). The **SLED DRIVER** (15) outputs **WDATA** (22) to the **SLED** (8). The **LASER DRIVER** (18) outputs **WDATA** (22) to the **LASER** (4). The **LASER** (4) outputs **WDATA** (22) to the **LD:PD:PD** (3) block. The **LD:PD:PD** (3) block outputs **WDATA** (22) to the **SPM** (6) block. The **SPM** (6) block outputs **WDATA** (22) to the **TWO-AXIS DRIVER** (16). The **TWO-AXIS DRIVER** (16) outputs **WDATA** (22) to the **SPM DRIVER** (17). The **SPM DRIVER** (17) outputs **WDATA** (22) to the **FG** (23) block. The **FG** (23) block outputs **WDATA** (22) to the **LD:PD:PD** (3) block. The **LD:PD:PD** (3) block outputs **WDATA** (22) to the **SLED** (8). The **SLED** (8) outputs **WDATA** (22) to the **RF** (9) block. The **RF** (9) block outputs **WOB** (25) to the **GROUP DECODE** (25) block. The **GROUP DECODE** (25) block outputs **SPE** (Speech) signals to the **SERVO PROCESSOR** (14). The **SERVO PROCESSOR** (14) also receives **FE** (Focus Error) and **TE** (Tracking Error) signals from the **RF** (9) block and outputs **FD** (Focus Drive) and **TD** (Tracking Drive) signals to the **SPM DRIVER** (17) and **LASER DRIVER** (18) respectively. The **SPM DRIVER** (17) outputs **WDATA** (22) to the **FG** (23) block. The **FG** (23) block outputs **WDATA** (22) to the **LD:PD:PD** (3) block. The **LD:PD:PD** (3) block outputs **WDATA** (22) to the **SLED** (8). The **SLED** (8) outputs **WDATA** (22) to the **RF** (9) block. The **RF** (9) block outputs **WOB** (25) to the **GROUP DECODE** (25) block. The **GROUP DECODE** (25) block outputs **SPE** (Speech) signals to the **SERVO PROCESSOR** (14). The **SERVO PROCESSOR** (14) also receives **FE** (Focus Error) and **TE** (Tracking Error) signals from the **RF** (9) block and outputs **FD** (Focus Drive) and **TD** (Tracking Drive) signals to the **SPM DRIVER** (17) and **LASER DRIVER** (18) respectively. The **SPM DRIVER** (17) outputs **WDATA** (22) to the **FG** (23) block. The **FG** (23) block outputs **WDATA** (22) to the **LD:PD:PD** (3) block. The **LD:PD:PD** (3) block outputs **WDATA** (22) to the **SLED** (8). The **SLED** (8) outputs **WDATA** (22) to the **RF** (9) block. The **RF** (9) block outputs **WOB** (25) to the **GROUP DECODE** (25) block. The **GROUP DECODE** (25) block outputs **SPE** (Speech) signals to the **SERVO PROCESSOR** (14). 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The **SPM DRIVER** (17) outputs **WDATA** (22) to the **FG** (23) block. The **FG** (23) block outputs **WDATA** (22) to the **LD:PD:PD** (3) block. The **LD:PD:PD** (3) block outputs **WDATA** (22) to the **SLED** (8). The **SLED** (8) outputs **WDATA** (22) to the **RF** (9) block. The **RF** (9) block outputs **WOB** (25) to the **GROUP DECODE** (25) block. The **GROUP DECODE** (25) block outputs **SPE** (Speech) signals to the **SERVO PROCESSOR** (14). The **SERVO PROCESSOR** (14) also receives **FE** (Focus Error) and **TE** (Tracking Error) signals from the **RF** (9) block and outputs **FD** (Focus Drive) and **TD** (Tracking Drive) signals to the **SPM DRIVER** (17) and **LASER DRIVER** (18) respectively. The **SPM DRIVER** (17) outputs **WDATA** (22) to the **FG** (23) block. The **FG** (23) block outputs **WDATA** (22) to the **LD:PD:PD** (3) block. The **LD:PD:PD** (3) block outputs **WDATA** (22) to the **SLED** (8). The **SLED** (8) outputs **WDATA** (22) to the **RF** (9) block. The **RF** (9) block outputs **WOB** (25) to the **GROUP DECODE** (25) block. The **GROUP DECODE** (25) block outputs **SPE** (Speech) signals to the **SERVO PROCESSOR** (14). The **SERVO PROCESSOR** (14) also receives **FE** (Focus Error) and **TE** (Tracking Error) signals from the **RF** (9) block and outputs **FD** (Focus Drive) and **TD** (Tracking Drive) signals to the **SPM DRIVER** (17) and **LASER DRIVER** (18) respectively. The **SPM DRIVER** (17) outputs **WDATA** (22) to the **FG** (23) block. The **FG** (23) block outputs **WDATA** (22) to the **LD:PD:PD** (3) block. The **LD:PD:PD** (3) block outputs **WDATA** (22) to the **SLED** (8). The **SLED** (8) outputs **WDATA** (22) to the **RF** (9) block. The **RF** (9) block outputs **WOB** (25) to the **GROUP DECODE** (25) block. The **GROUP DECODE** (25) block outputs **SPE** (Speech) signals to the **SERVO PROCESSOR** (14). 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The **SPM DRIVER** (17) outputs **WDATA** (22) to the **FG** (23) block. The **FG** (23) block outputs **WDATA** (22) to the **LD:PD:PD** (3) block. The **LD:PD:PD** (3) block outputs **WDATA** (22) to the **SLED** (8). The **SLED** (8) outputs **WDATA** (22) to the **RF** (9) block. The **RF** (9) block outputs **WOB** (25) to the **GROUP DECODE** (25) block. The **GROUP DECODE** (25) block outputs **SPE** (Speech) signals to the **SERVO PROCESSOR** (14). The **SERVO PROCESSOR** (14) also receives **FE** (Focus Error) and **TE** (Tracking Error) signals from the **RF** (9) block and outputs **FD** (Focus Drive) and **TD** (Tracking Drive) signals to the **SPM DRIVER** (17) and **LASER DRIVER** (18) respectively. The **SPM DRIVER** (17) outputs

FIG. 2

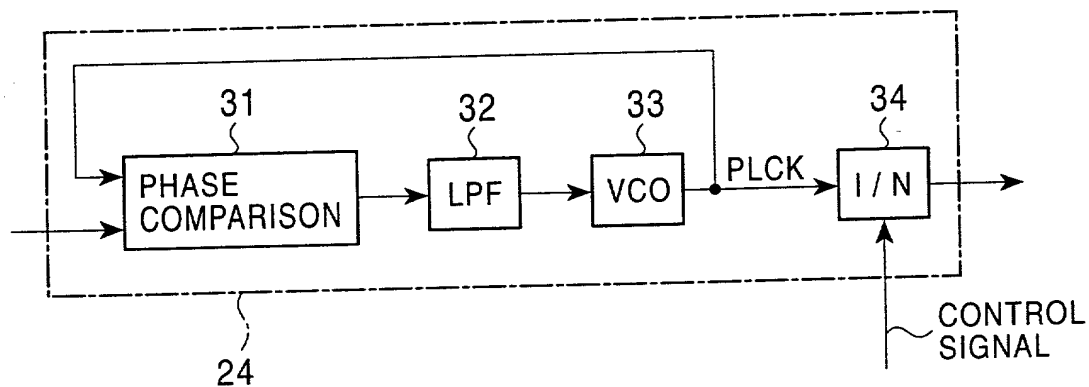


FIG. 3A

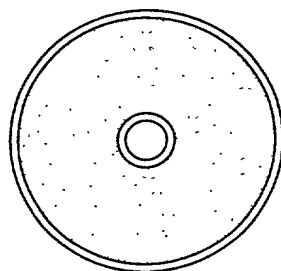


FIG. 3B

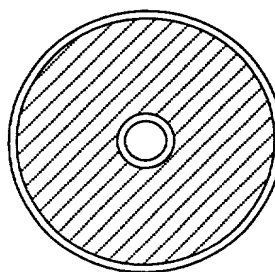


FIG. 4

	STANDARD DENSITY	HIGH DENSITY
USER DATA CAPACITY	650 Mbytes (120 mm) 195 Mbytes (80 mm)	1.30 Gbytes (120 mm) 0.40 Gbytes (80 mm)
PROGRAM AREA START POSITION (RADIUS)	50 mm	48 mm
CENTER HOLE DIAMETER	15 mm	15 mm
DISK THICKNESS	1.2 mm	1.2 mm
TRACK PITCH	1.6 $\mu$ m	1.10 $\mu$ m
SCANNING SPEED	1.2~1.4 m/s	0.90 m/s
LASER WAVELENGTH	780 nm	780 nm
MODULATION METHOD	0.45	0.55
NA	EFM	EFM
ERROR-CORRECTION METHOD	CIRC4	CIRC7
CHANNEL BIT RATE	4.3218 Mbps	4.3218 Mbps

700720-8T500650

FIG. 5

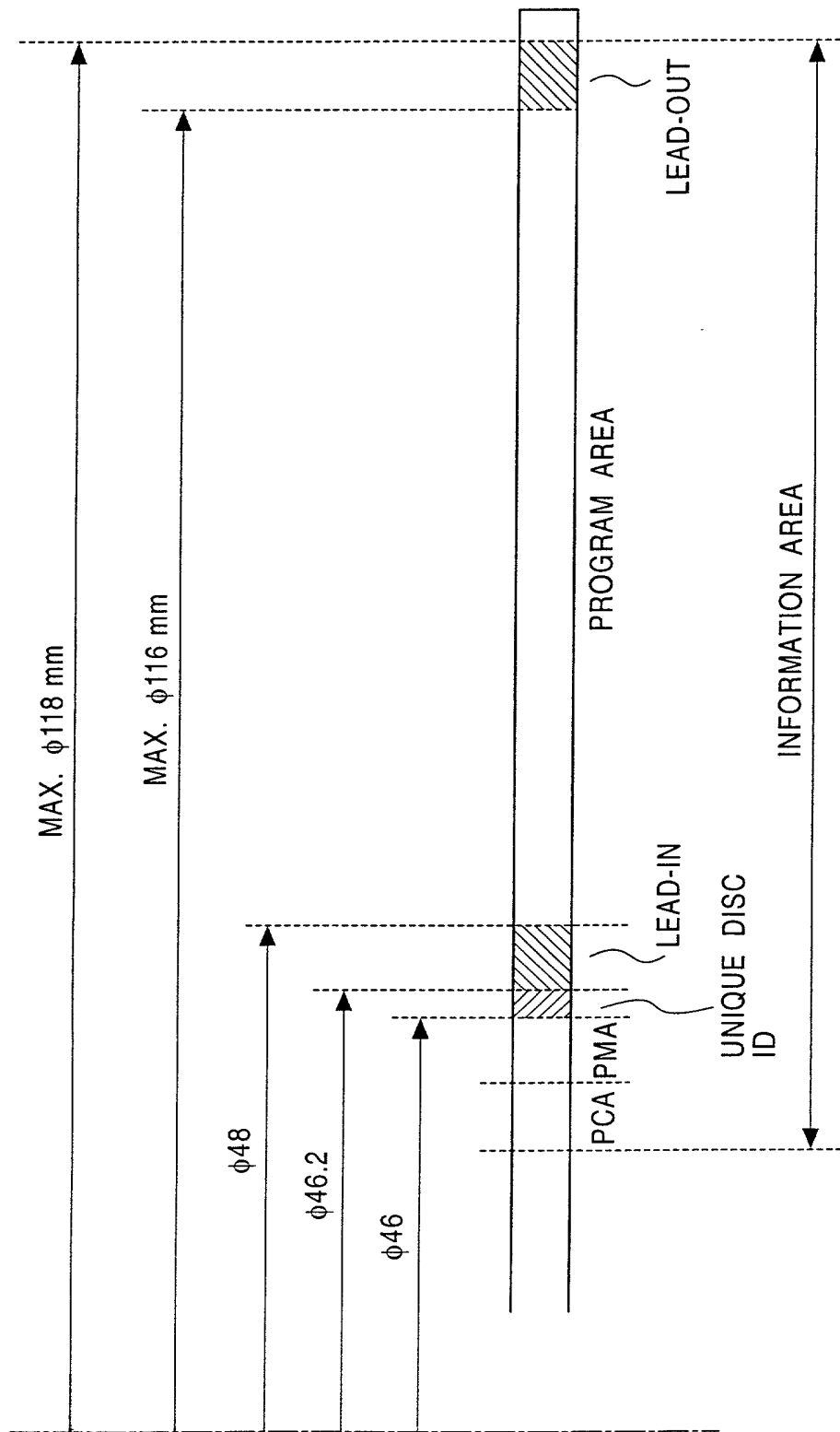


FIG. 6

COUNTRY CODE	2 BYTES
DISC MANUFACTURE DATE	1 BYTE
DISC MANUFACTURE NAME	2 BYTES
DISC ID	8 BYTES
WRITER MANUFACTURE NAME	1 BYTE
WRITER SERIAL NUMBER	2 BYTES
WRITER MODEL NAME	1 BYTE
RESERVE	:

FIG. 7

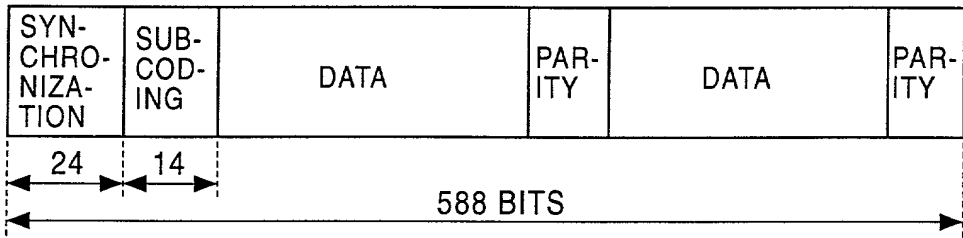


FIG. 8A

FRAME	SUBCODING FRAME							
98n + 1	SYNCHRONIZATION PATTERN							
98n + 2	SYNCRHONIZATION PATTERN							
98n + 3	P1	Q1	R1	S1	T1	U1	V1	W1
98n + 4	P2	Q2	R2	S2	T2	U2	V2	W2
⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮
98n + 97	P95	Q95	R95	S95	T95	U95	V95	W95
98n + 98	P96	Q96	R96	S96	T96	U96	V96	W96
98(n+1) + 1								

FIG. 8B

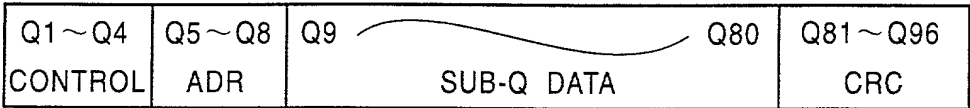
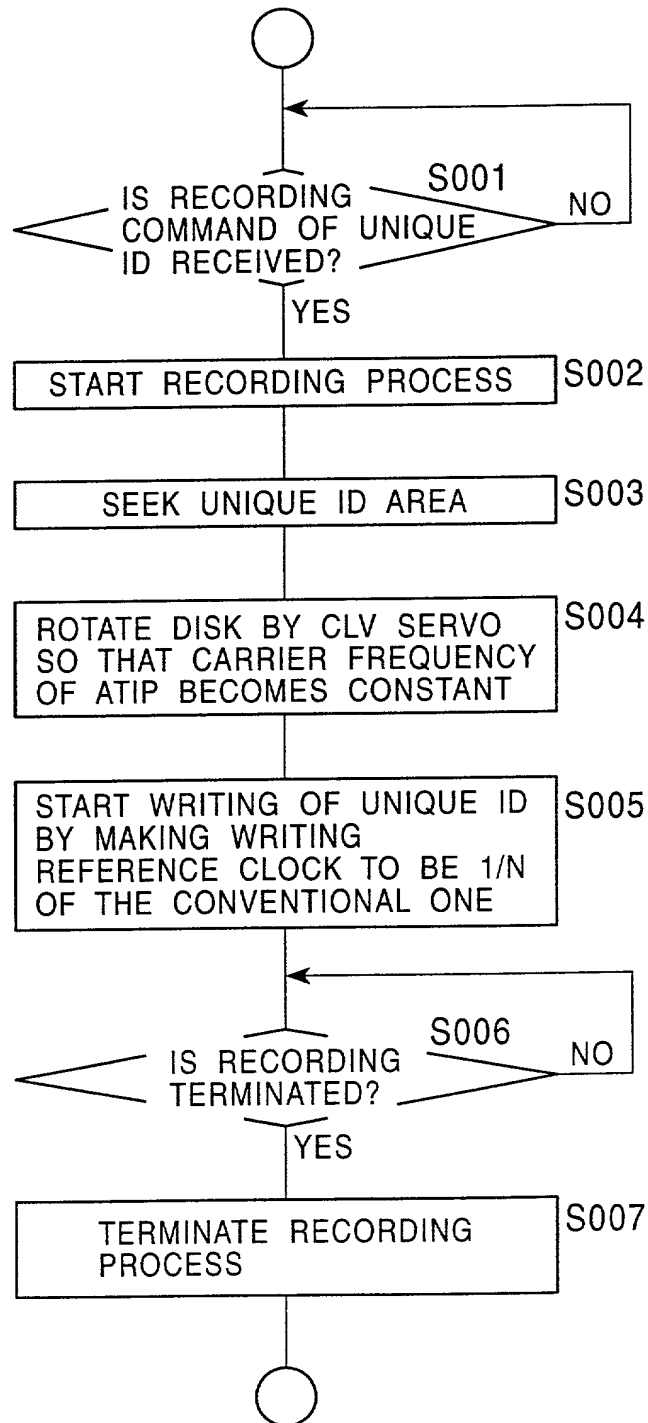
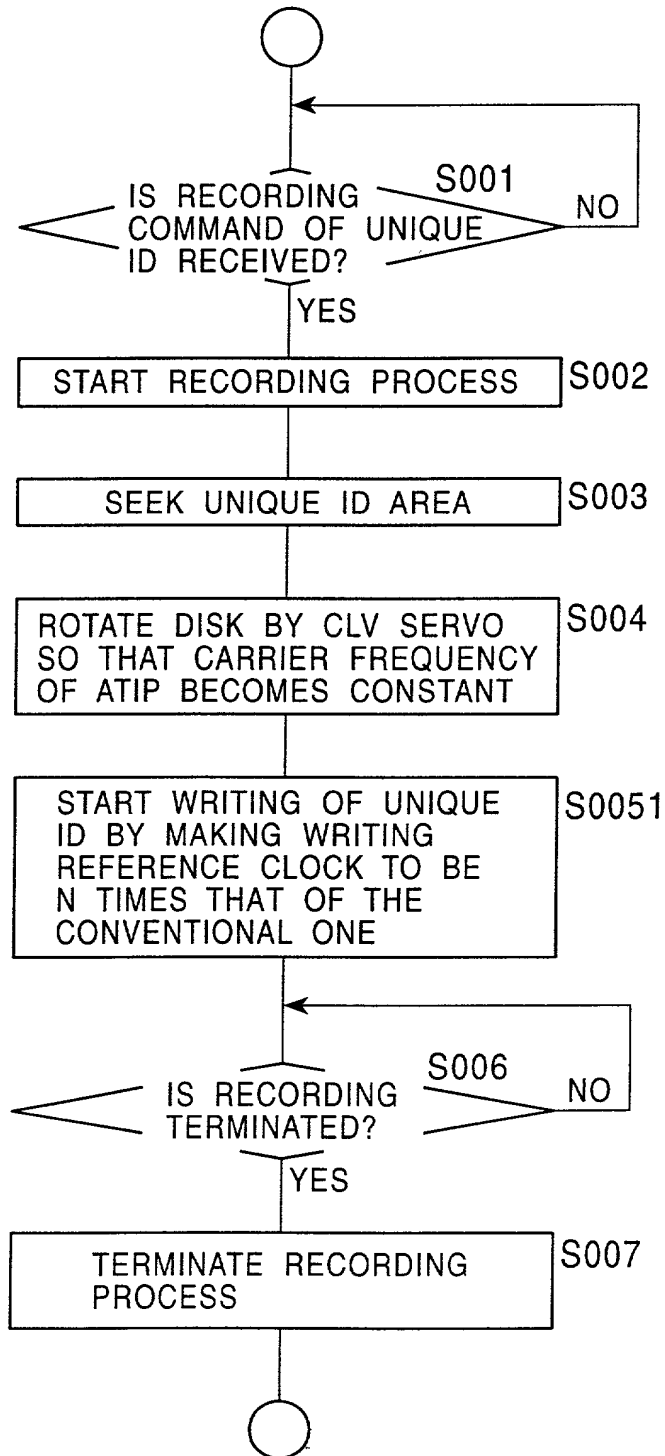


FIG. 9



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FIG. 10

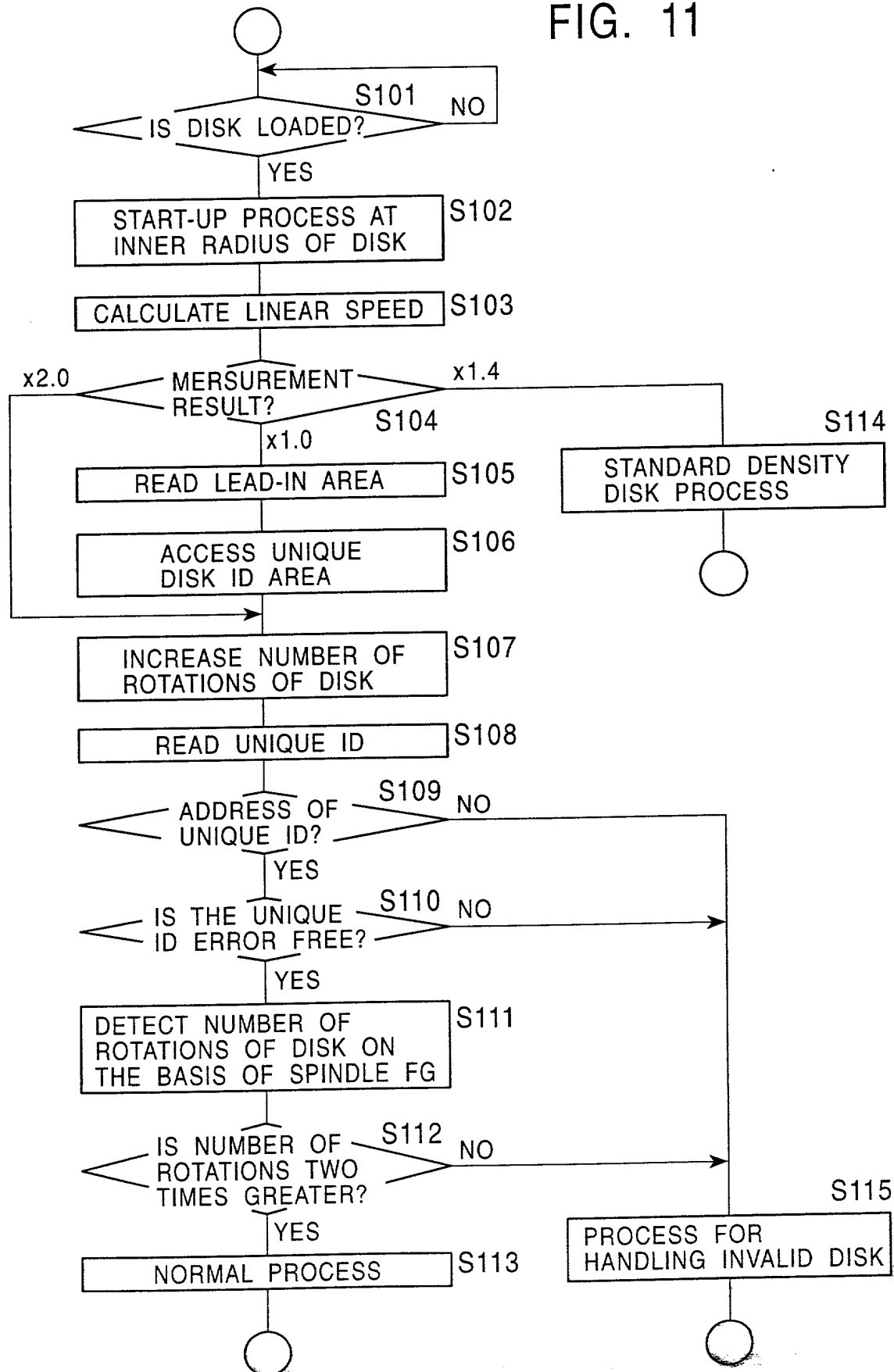


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FIG. 11



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FIG. 12

